LCRA
ENERGY • WATER • COMMUNITY SERVICES

Via E-Mail

May 19, 2011

Mr. Stephen Hoffman
US Environmental Protection Agency (5304P)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Re: Action Plan – Response to Final Report Recommendations
Assessment of Dam Safety of Coal Combustion Surface Impoundments
Fayette Power Project, 6549 Power Plant Road, La Grange, Texas

Dear Mr. Hoffman:

On June 23 and 24, 2010, CDM conducted an inspection of the Ash Pond and Reclaim Pond at the Fayette Power Project. On October 1, 2010, the Lower Colorado River Authority (LCRA) received a draft copy of the "Assessment of Dam Safety of Coal Combustion Surface Impoundments, Sam Seymour – Fayette Power Project Station" dated August 6, 2010. LCRA submitted comments on the draft report by email to EPA on October 27, 2010. The final report dated March 11, 2011 was provided to us by Ms. Suzanne Rudzinski by letter dated April 20, 2011. Ms. Rudzinski's letter also requested that LCRA address each of the recommendations in the final report.

The recommendations from the final report are listed below followed by LCRA's specific plans and schedules to address the recommendations. For clarity, the report recommendations have been italicized.

4.3 Maintaining and Controlling Vegetation Growth

Tall vegetation, brush, and trees up to 30 inches in diameter obscured visual observations on the east embankment exterior slope and at the toe of the north embankment at the Reclaim Pond. Some small trees and brush were observed at the toe of the CADP (coal ash disposal pond) south embankment. CDM recommends that vegetation be cut on a regular basis to ensure that adequate visual observations can be made by LCRA personnel during routine inspections.

Huisache trees up to 30 inches in diameter were observed on the embankments. CDM recommends the huisache trees (including the root ball) be removed and filled with compacted fill under the supervision of a qualified dam engineer. CDM also recommends continued maintenance and brush removal.

LCRA Response: LCRA has hired a contractor specializing in right-of-way maintenance to manage vegetative growth on the embankments. To ensure that the vegetation is maintained on a regular basis, the work is currently managed using an enterprise-wide work management system where recurring tasks, such as inspections and mowing, can be scheduled, assigned and tracked through completion.

The removal of all Huisache and other small trees was completed in March 2011. The root balls of larger trees (diameters ≥ 8 inches) were also removed and affected embankment areas were properly restored and revegetated. All work was conducted under the supervision of an LCRA Dam Safety engineer.

4.4 Erosion Protection and Repair

Tractor ruts were observed at various locations along the crest of the Reclaim Pond. On the interior slopes there were some areas with little or no riprap armor. The east embankment interior slope of the Reclaim Pond had an eroded area at the abandoned pipe outlet from concentrated water flow. The spillway approach channel had some riprap missing and was overgrown. Erosion features should be filled in with compacted material and otherwise stabilized. CDM recommends on-going maintenance to reduce erosion from run-off including minor grading to divert surface runoff, establishment of vegetative cover, or other measures. CDM also recommends replacing riprap in areas with little or no armor.

Multiple rodent holes were observed on the exterior slopes of the CADP east embankment. Multiple surface depressions (that are likely collapsed rodent holes) were also observed. Animal control measures should be implemented to reduce embankment disturbance. All affected areas should be backfilled with compacted fill, graded to match the surrounding topography, and seeded with appropriate noninvasive grassy vegetation.

LCRA Response: The tractor ruts along the crest of the Reclaim Pond were filled and compacted in July 2010 and the referenced erosion features were filled in with compacted material in March 2011. Rip rap was added in March 2011 in the areas where there was little or no riprap armor on the interior slopes of the Reclaim Pond and the spillway approach. Rodent holes and multiple surface depressions have been backfilled with compacted fill, graded as necessary, and reseeded.

Ongoing maintenance of embankments, such as erosion protection and repair work, is currently managed using the work management system. If areas requiring additional erosion protection are observed during an inspection, a job plan (tasks, resources and schedule) is prepared and entered into the work management system. The system generates the required notifications and tracks the work until it is completed. Animal control practices, such as trap and release, will also be managed using the work management system.

4.5 Impoundment Hydraulic and Stability Analysis

LCRA did not provide CDM with a current hydraulic analysis of the CADP demonstrating the ability of the impoundments to safely pass or store the applicable design storm, which appears to be the full PMF (probable maximum flood) event based on Bechtel (1976). However, LCRA has submitted a closure plan to TCEQ and the impoundment is planned for closure. It is our understanding that the cap for the impoundment is being designed to handle run-off for a 24-hour, 100-year rainfall event. LCRA did not provide CDM with a hydraulic analysis of the Reclaim Pond demonstrating the ability of the impoundments to store safely pass or store the applicable design storm, which appears to be the 50% PMF event. However, a preliminary evaluation performed by CDM suggests there is enough storage capacity at the current operating pool levels to safely store precipitation from the full PMF. CDM recommends LCRA perform a detailed study to confirm this conclusion and update the study if operating levels of the pond change in the future.

Based on CDMs review of available information for the impoundments, the following analyses are recommended to be performed to confirm that the embankments are adequately stable under the loading conditions outlined in Section 3.

Coal Ash Disposal Pond

□ *Evaluate the stability of the embankment under seismic conditions, including an evaluation of liquefaction potential of stored fines, at proposed water levels after closure.*

Reclaim Pond

□ *Evaluate the stability of the north and east embankment under various appropriate loading conditions. Representative cross-sections of the embankment should be evaluated.*

□ *Evaluate the stability of the embankments under normal pool and maximum surcharge pool (flood) conditions.*

□ *Evaluate the stability of the interior and exterior slopes under seismic loading, including an evaluation of the liquefaction potential of stored fines and steady state seepage loading conditions.*

□ *Perform a liquefaction potential analysis.*

□ *Evaluate the stability of the interior slope under rapid drawdown loading conditions. While a rapid drawdown is not a scenario that has a high probability of occurrence, it should be demonstrated that this condition meets the industry recommended factor of safety in the event that a catastrophic condition develops whereby a rapid drawdown situation occurs.*

LCRA Response: Construction to close the Ash Pond began in March 2011 and is scheduled to be complete by February 2012. The closure is being conducted according to the closure plan approved by the Texas Commission on Environmental Quality. The cap for the impoundment is designed to handle run-off from a 24-hour, 100-year rainfall event. No additional hydraulic evaluations are proposed for the Ash Pond.

LCRA will hire an engineering firm to conduct a hydraulic analysis for the Reclaim Pond. In addition, this same engineering firm will be tasked with the embankment stability evaluations and analyses recommended for the Reclaim Pond and Ash Pond. An engineering firm will be selected before the end of June 2011. The stability evaluations will be completed by January 15, 2012. If additional geotechnical data is required, the completion date for the stability evaluations will be extended by four (4) months to May 15, 2012.

4.6 Instrumentation

Water levels in the impoundments are recorded twice daily by LCRA personnel. Plant personnel also record water levels in the monitoring wells on a quarterly basis. CDM recommends that an updated monitoring well network plan be prepared to identify the locations of all functioning wells so that they can be utilized to monitor future water levels.

Four monitoring wells are reportedly located on the crest of the CADP east embankment. CDM recommends the monitoring wells be located in the field and returned to service or that they be properly abandoned.

LCRA Response: LCRA already has an updated monitoring well network plan that identifies all wells currently monitored. LCRA recognizes that there are four (4) piezometers or monitoring wells that were installed shortly after the construction of the Ash Pond that need to be located in the field and either returned to service or properly plugged.

The crest of the eastern embankment of the Ash Pond is currently being used on regular basis to access and move equipment during current Ash Pond closure activities. Following closure, but no later than May 15, 2012, a good faith effort will be made to locate these piezometers. After the approximate location of each piezometer is staked, reasonable investigative trenching will be conducted to locate the two-inch pvc piezometer. All disturbed areas will be restored and stabilized.

4.7 Seepage Control and Closure Dewatering

Minor amounts of seepage were observed at the CADP, including the seep that is currently being contained. LCRA's current seepage containment system does not appear to be a viable long-term solution once the impoundment is closed. An alternative method of collecting and managing the seepage should be evaluated as part of the closure plans.

In addition, CDM recommends LCRA investigate the hydraulic connection between the impoundment and the Cedar Creek Dam as part of the closure design in order to evaluate potential impacts resulting from changes in groundwater levels and pore water pressures. Where the impoundment is built on the downstream slope of the dam, dewatering activities performed to stabilize the CCW (coal combustion waste) and construct the cap may impact the phreatic level within the embankment of the dam. Changes to the phreatic level in the Cedar Creek Dam may result in potentially unstable slopes, settlement, or other undesirable consequences. Dewatering of CCW during closure activities should be staged to prevent excess pore pressure build-up and conducted in a manner to prevent significant seepage gradients, which could affect the stability of the Cedar Creek Dam. LCRA should also evaluate the anticipated long-term seepage from the Cedar Creek Dam into the impoundment and its impact on closure.

LCRA Response: The referenced seep that was being contained during the June 23-24, 2010 inspection is no longer active. This area will continue to be monitored during routine inspections. In the event significant seepage redevelops, a permanent engineered containment system will be constructed according to a design prepared in July 2010.

Prior to conducting any dewatering activities within the northern half of the Ash Pond, i.e., the half of the Ash Pond currently being closed and located adjacent to the Cedar Creek Dam, LCRA will hire an engineering firm to determine if Ash Pond dewatering could negatively affect the stability of Cedar Creek Dam.

4.8 Inspection Recommendations

Based on the information reviewed by CDM, it appears LCRA has adequate inspection practices for the CADP. Inspections are performed routinely and documented via daily status reports. Detailed inspections are documented and are completed for the CADP on a quarterly basis. Annual inspections are completed by an engineer. LCRA should also perform inspections in a similar manner for the Reclaim Pond. It is recommended that the quarterly inspection records be retained at the facility for a minimum of three (3) years.

LCRA Response: Quarterly inspections for the Reclaim Pond were implemented effective October 2010. The Reclaim Pond will be inspected by an LCRA Dam Safety engineer on an annual basis. The inspection records will retained at the facility for a minimum of three (3) years.

4.9 Operations

There is no formal operation and maintenance manual for the impoundments. CDM recommends that written operation and maintenance guidelines be developed outlining procedures for the maintenance of the embankments and operational procedures for the impoundments and appurtenant structures.

There is no formal emergency action plan (EAP) for the impoundments. Both impoundments have a low hazard classification. However, failure or misoperation of the impoundments could result in a condition

that needs to be managed from an environmental and property damage standpoint. Detailed emergency action procedures should be developed to identify roles and responsibilities and to facilitate internal and external communication necessary to manage an impoundment failure. The procedures should include coordination with Cedar Creek Dam operations in event of an unintended release or breach of the impoundments, since failure of the Coal Ash Disposal Pond or the Coal Pile Run-off Pond could have adverse effects on the dam.

LCRA Response: An operations and maintenance guide for embankments and impoundments, excluding Cedar Creek Dam and Reservoir, will be completed for the Fayette Power Project by September 30, 2011. This guide will include references to the job plans included in the work management system previously mentioned in response to Recommendations 4.3 and 4.4. The guide will also include references or links to inspection forms, monitoring and data management requirements, water management procedures and guidelines, records management, and the emergency action plan. This guide will be reviewed/updated annually.

Emergency action procedures for the Ash Pond and Reclaim Pond will be developed by November 30, 2011. The procedures will include response actions and defined roles and responsibilities specific to an unintended release or breach of each impoundment.

4.10 Closure Recommendations

The closure plan indicates proposed grades for the new cap will range from 1% to 4.45%. TCEQ TG No. 3 recommends final covers are graded with sufficient slopes to provide positive drainage, typically between 3% and 5%. Common practice is to create a minimum of a 2% slope to allow for surface water conveyance and prevent pooling. In addition, a 1% grade is difficult to construct and differential settlement in the CCW could result in low areas and subsequent pooling if such a small grade is used. CDM recommends that LCRA evaluate the slope of the cap and potential future settlement to ensure that the cap functions as intended.

LCRA Response: Since the June 23-24, 2010 inspection, the final contours have been adjusted to increase the slope within the half of the Ash Pond currently being closed. LCRA appreciates the recommendation and also understands that the cap must function as intended to be released from post-closure care.

If you have any questions regarding this submittal, please contact Ken Launius at 979-966-7618.

Sincerely,

Jane Luedecke

Ms. Jane Luedecke
Plant Manager
Fayette Power Project